DOCUMENT RESUME

ED 079 408 TM 003 012

AUTHOR	Loui, Beatrice
TITLE	Summary Report of Minimum Testing Program 1970-1971. Evaluation Report No. 80.
INSTITUTION	Hawaii State Dept. of Education, Honolulu. Office of Instructional Services.
REPORT NO	Eval-R-80
PUB DATE	21 Apr 72
NOTE	64p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Achievement Tests; Elementary Grades; *Norms; Program Evaluation; School Districts; *Scores; Secondary Grades; Standardized Tests; *State Programs; Statistical Data; *Test Results
IDENTIFIERS	*Hawaii

ABSTRACT

The twelfth in a series of test reports presents summarized data for all tests given for the school year 1970-71 as part of Hawaii's statewide testing program. Information regarding the number of pupils tested, the type of statistics reported, use of test data, and publisher's national norms is given in the introduction. The following test results are given: (1) California Short-Form Test of Mental Maturity, Grade 2--descriptive comment, mean scores by State and districts, and Hawaii norms by IQ; (2) California Reading Test, Grade 2--descriptive comment, mean scores by State and districts, and Hawaii norms; (3) SCAT and STEP in reading, math and writing, grades 4, 6, 8, 10 and 12--descriptive comment, mean scores by State and district, interpretation and use of test data, and Hawaii norms; (4) STEP in science, social studies and listening, grades 5, 7, 9, 11 and 12--descriptive comment, mean scores by State and district, interpretation and use of test data, and Hawaii norms; and (5) Differential Aptitude Test, Grade 9--descriptive comment, mean scores by State and district, Hawaii norms, and interpretation and use of test data. A summary and graphs comparing the State to national norms are also provided. (KM)

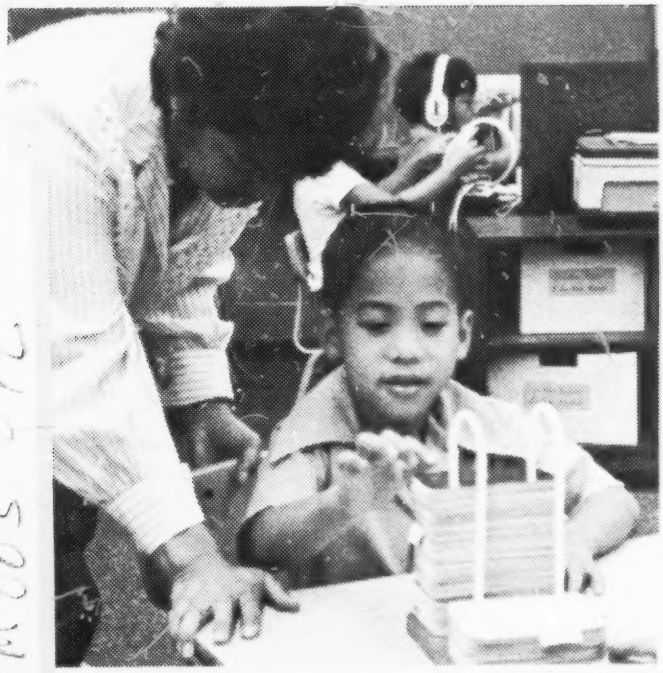
FILMED FROM BEST AVAILABLE COPY

EVALUATION REPORT NO. 80

SUMMARY REPORT OF MINIMUM TESTING PROGRAM 1970-1971

ED 079408

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY



TM 003 912

OFFICE OF INSTRUCTIONAL SERVICES • EVALUATION SECTION, TESTING UNIT
DEPARTMENT OF EDUCATION • STATE OF HAWAII • OFFICIAL • TAC 72-4558 • DECEMBER 1971

The Honorable John A. Burns
Governor, State of Hawaii

BOARD OF EDUCATION

Dr. Richard E. Ando, Chairman

Hiroshi Yamashita, Vice Chairman
George S. Adachi
C. Ronald Harker
Myrtle K. Kaapu
Robert N. Kumasaka
Marvin C. Midkiff
Rufu Tabrah
Kiyoto Tsubaki
Rev. Edwin B. Womack
Tommy Wong

Dr. Shiro Amioka, Superintendent of Education
Teichiro Hirata, Deputy Superintendent

Norman P. Horne, Acting Assistant Superintendent
Office of Library Services

Dr. Philip Ige, Assistant Superintendent
Office of Instructional Services

George D. L. Mau, Assistant Superintendent
Office of Personnel Services

Harold Fukunaga, Acting Assistant Superintendent
Office of Business Services

Louis Yamauchi, Assistant Superintendent
Office of Research and Planning

Harry C. Chuck, District Superintendent
Hawaii District Office

Francis M. Hatanaka, District Superintendent
Central District Office

Jimmy Izu, Acting District Superintendent
Windward District Office

Domingo Los Banos, Jr., District Superintendent
Leeward District Office

Dr. Albert Miyasato, District Superintendent
Honolulu District Office

Barton H. Nagata, District Superintendent
Kauai District Office

Andy Niu, District Superintendent
Maui District Office

Foreword

This report, the twelfth in our Test Series, presents summarized data for all tests given for the school year 1970-1971 as part of our Statewide Minimum Testing Program. Besides descriptive content, there are twenty tables and three figures depicting the typical test performance of our students in the seven districts. Local norms have been developed for use as additional points of reference for interpretation.

The purpose of this report is to provide one source of relevant statistical data and information for use by teachers, principals, and curriculum workers in improving the instructional program, in the guidance of individual students, in evaluating pupil growth and for conferences with parents and students. Variation in patterns of test scores by districts and schools also may have implications for the allotment of resources.

Various standardized tests are used in the Statewide Testing Program. Standardized tests are used to identify an individual's performance in relation to the performance of others on the same measure. The Sequential Tests of Educational Progress used in our testing program are survey tests; they measure broad critical skills and understandings which cut across different grade levels. These tests do not measure specific programs in various subject matter areas.

A test becomes standardized when it is administered to many students whose scores on the test have been analyzed by the test-maker. These students who are administered the test make up the norm group and are representative of the total national population. On a norm-referenced or standardized test, the norms

represent the average or typical performance of the pupils who took the test during its standardization. A norm describes average performance, not superior or poor performance. A norm is not regarded as an absolute standard of achievement. Our test results may show 30 per cent of the students scoring below the norm. This means that our students are doing better than the norm group since 70 per cent of our students scored above the norm. The Statewide Minimum Testing Program annually reports Hawaii norms as well as district averages for standardized tests for comparative purposes. It also provides state and district item studies which point out concepts, skills and understandings requiring greater emphasis in curriculum planning.

It is also recommended that in interpreting test results other data such as socio-economic status, mobility and other relevant characteristics of the school community be considered.

The content of this report was prepared by Beatrice Loui, Staff Specialist in Testing, who has so ably guided the Statewide Minimum Testing Program.

Shiro Amioka

SHIRO AMIOKA
Superintendent of Education

April 21, 1972
Date

Table of Contents

	Page
Foreword	i
Introduction	1
Number of Pupils Tested	1
Type of Statistics Reported	3
Use of Test Data	4
Publisher's National Norms	5
California Short-Form Test of Mental Maturity, Grade 2	8
Summary of Scholastic Ability Testing	10
State of Hawaii Norms	11
California Reading Test, Grade 2	12
Summary of California Reading Test	13
State of Hawaii Norms	14
School and College Ability Tests (SCAT) and Sequential Tests of Educational Progress (STEP) in Reading, Mathematics and Writing, Grades 4, 6, 8, 10 and 12	15
Interpretation and Use of Test Data	21
Sequential Tests of Educational Progress (STEP) in Science, Social Studies and Listening, Grades 5, 7, 9, 11 and 12	35
Interpretation and Use of Test Data	38
Differential Aptitude Test (DAT), Grade 9	45
Interpretation and Use of Test Data	52
Summary of Test Results for 1970-1971	53

List of Tables and Figures

Table		Page
1	Summary of Scholastic Ability Testing, Grade 2	10
2	State of Hawaii Norms, Scholastic Ability Testing, Grade 2	11
3	Summary of California Reading Test, Grade 2	13
4	State of Hawaii Norms, California Reading Test, Grade 2	14
5	Summary of School and College Ability Tests (SCAT), Grades 4, 6, 8, 10 & 12	16
6	Summary of Sequential Tests of Educational Progress (STEP) in Reading, Mathematics and Writing, Grades 4, 6, 8, 10 & 12	18
7	State of Hawaii Norms, SCAT and STEP Reading, Mathematics and Writing for Grade 4	24
8	State of Hawaii Norms, SCAT and STEP Reading, Mathematics and Writing for Grade 6	26
9	State of Hawaii Norms, SCAT and STEP Reading, Mathematics and Writing for Grade 8	28
10	State of Hawaii Norms, SCAT and STEP Reading, Mathematics and Writing for Grade 10	30
11	State of Hawaii Norms, SCAT and STEP Reading, Mathematics and Writing for Grade 12	32
12	Summary of STEP in Science, Social Studies and Listening in Grades 5, 7, 9, 11 & 12	36
13	State of Hawaii Norms, STEP Science, Social Studies and Listening for Grade 5.	40
14	State of Hawaii Norms, STEP Science, Social Studies and Listening for Grade 7.	41
15	State of Hawaii Norms, STEP Science, Social Studies and Listening for Grade 9.	42
16	State of Hawaii Norms, STEP Science, Social Studies and Listening for Grade 11	43
17	State of Hawaii Norms, STEP Science, Social Studies and Listening for Grade 12	44
18	Summary of Differential Aptitude Test, Male and Female, Grade 9	46
19	State of Hawaii Norms, DAT, Male	48
20	State of Hawaii Norms, DAT, Female	50

Figures

1	School and College Ability Test (SCAT) 1970-1971	56
2	Sequential Tests of Educational Progress (STEP) 1970-1971 - Reading, Mathematics and Writing	57
3	Sequential Tests of Educational Progress (STEP) 1970-1971 - Science, Social Studies and Listening	58

Introduction

The basic function of our Statewide Minimum Testing Program is to provide periodic, continuous, consistent and comparable measures of the pupil's progress as he moves through the elementary and secondary grades. Test results furnish one source of objective information used by school staff for purposes of pupil guidance, instructional planning, program evaluation and conferences with parents and students.

Tests administered as part of our Statewide Minimum Testing Program include the following:

Grade 2	- California Short-Form Test of Mental Maturity - California Reading Test, Upper Primary
Grades 4, 6, 8, 10 & 12	- Cooperative School and College Ability Test (SCAT) and Sequential Tests of Educational Progress (STEP) in Reading, Mathematics and Writing
Grades 5, 7, 9, 11 & 12	- Sequential Tests of Educational Progress (STEP) in Science, Social Studies and Listening
Grade 9	- Differential Aptitude Test Battery, Revised

Number of Pupils Tested

During the past year 132,064 regularly-enrolled pupils in Hawaii's public schools in grades two through twelve were administered approximately 582,967 tests. This constitutes 98 per cent of the school population. The types of tests administered and the number and proportion of pupils served are given on the next page.

Number of Pupils Tested 1970-71

Grade	Types of Tests Administered* I	II	III	IV	Total Tests Administered	Total Pupils Tested at Least Once	Grade Enrollment	Per Cent Tested
2		14,891		14,700	29,591	14,891	14,899	99
4	14,519	14,519			58,076	14,519	14,575	99
5	14,316				42,948	14,316	14,371	99
6	14,109	14,109			56,436	14,109	14,195	99
7	13,394				40,182	13,394	13,439	99
8	13,428	13,428			53,712	13,428	13,436	99
9	13,035		13,151		144,313	13,151	13,259	99
10	12,633	12,633			50,532	12,633	13,246	99
11	11,046				33,138	11,046	12,126	91
12	10,577	10,577			74,039	10,577	10,813	98
TOTAL	117,057	80,157	13,151	14,700	582,967	132,064	134,359	98

* I - Achievement Battery
II - Scholastic Ability
III - Multi-factor
IV - Single Achievement

Besides the above, many schools used additional tests on a supplementary basis to meet their own particular needs. Approximately 50,100 supplementary tests were administered this year. Assistance in the selection of appropriate supplementary tests for use and their proper interpretation is provided by the state and district offices.

Type of Statistics Reported

The statistics used in the present report for the tests administered in the Statewide Minimum Testing Program are the following:

Norms. Norms describe the test performance of reference groups of pupils of various ages or grades in the standardization group for the test. Standard scores and percentiles are common types of norms.

Mean. The sum of a set of scores divided by the number of scores.

Median. It is the middle score in a set of ranked scores. It is the point above or below which an equal number of ranked scores lie. It corresponds to the 50th percentile or Q_2.

Q_1. It is the first quartile on the score scale, the point below which lie 25% of the scores.

Q_3. It is the third quartile on the score scale - the point below which lie 75% of the cases.

Standard Deviation (S.D.). It expresses the extent of the deviations from the mean for the distribution.

Percentile. One of the 99 point scores that divide a ranked distribution into groups, each of which contains 1/100 of the scores. It is a point (score) in a distribution below which falls the per cent of cases indicated by the given percentile. Thus, the 73rd percentile denotes the score or point below which 73 per cent of the scores fall in this particular distribution of scores.

Percentile Rank. This is an individual's rank in a standard group of 100 persons representative of the full range of the normative population. If a person obtains a percentile rank of 70, his standing is regarded as equaling or

surpassing 70 per cent of the normative group (or group to which he is compared). A percentile rank score of 70 may also be interpreted to mean that his standing is equal to or lower than 30 per cent of the group.

Grade Placement. A score or a scale developed to indicate the school grade and month in that school grade which is than assigned to the average chronological age, mental age, test score, or other characteristics of pupils classified at this school grade. A grade placement of 3.2 is interpreted as the second month of the third grade.

Converted Score is a unit in a system of equated scores established for the raw scores of a test so that such score values may themselves be interpreted usually as representative of the mean performance of certain reference groups.

Mid-Percentile. The mid-percentile indicates the approximate midway point within a percentile band. It is the best estimate of a student's standing in terms of the test.

Percentile Band. It is a confidence interval indicating a range of standings within which students' scores are likely to fall 68 times out of 100.

Use of Test Data

When standardized tests are wisely selected, carefully administered, and interpreted in proper relationship to other data, they can provide a reasonably objective indication of the standing on the measured characteristics relative to the performance of the group being compared.

Test data provide us with one source of objective information in terms of performance to aid in decision making. The proper interpretation and use of this information should give us direction, meaning and implications for our educational

activities. The real value of a testing program is obtained when all the participants - the student, the teacher, the principal, the curriculum and program specialists, and the school administrator - share in an understanding of the testing program in terms of its purposes, its results and its potential in helping us achieve desired educational goals.

Publisher's National Norms

The interpretation and use of test score information is simplified by establishing reference data or norms which make it easier to make comparisons and to state conclusions. Norms data are provided by the publisher of the test used and are obtained by administering the tests to a specific group of individuals. Such groups selected for comparison purposes are norms groups. When they are called "national norms" groups, the term "national" refers to the fact that the students whose scores were used to establish the publisher's reference data were enrolled in schools in various sections of the nation. Such norms groups are never perfectly representative of all the students of a particular grade in a nation, but as sample comparison groups, they help to give meaning to local group test scores. The mean of a norms group of scores is a mid-reference point. It is not the score which every school or pupil is expected to achieve. Some pupils or schools will be doing well if they achieve at this national level while others should achieve at higher levels. Norms are not standards.

The term publisher's mean or national average as used in this report refers to the mean or average of the test scores of the pupils in the publisher's selected national norms group.

State of Hawaii Norms. Local or State of Hawaii norms have been developed again for each of the standardized group tests included in our Statewide Minimum Testing Program. These are given in this report after each test. Since these norms are more specific, they should provide a more meaningful and useful basis for interpreting test results of pupils with the same curricula, organization, geographical environment, and type of pupils. The gathering of this form of data over a period of years should provide us with some significant information about our own students in terms of test performance.

The tables of local norms report percentiles, raw or derived score equivalents, the first quartile, the median, the third quartile, the mean, the number of cases, and also the publisher's national mean or median to facilitate interpretation of test results.

Schools are encouraged to compare the performance of their students with that of the State of Hawaii norm group and also their own respective district norm group in addition to that of the publisher's "national" norm group to secure a more meaningful interpretation of outcomes.

State of Hawaii norms are presented in consecutive percentiles for the corresponding converted scores to give a finer breakdown in working with the test results of students. The median, Q_1, and Q_3 are indicated in the norms tables.

Here is an example illustrating the use of state norms in interpreting scores. John took the STEP in Reading in the fourth grade and made a converted score of 243. When this is compared to publisher's or national norms, his percentile band and mid-percentile are 46-56 and 50, respectively. However,

when his converted score of 243 is compared with the State of Hawaii norms group (see Table 7), his percentile rank is 61.

Another example is Mary who is a senior in a large high school who wants to apply to the State University. To find out how she compares with other students in academic ability, the counselor checks her scholastic ability test score against norms for three different groups:

- Publisher's national 12th grade norm - Her %ile standing is 70.
- State of Hawaii Norms for 12th grade - Her %ile standing is 90.
- Students accepted by the State University - Her %ile standing is 80.

It should be obvious from the above illustrations that test interpretations depend on the specific group with which a given student's performance is compared and that comparisons with different groups yield different interpretations. These should be considered in individual educational planning.

California Short-Form Test of Mental Maturity

The California Short-Form Test of Mental Maturity, Revised, Level 1, provides information in terms of the "pupil's readiness to understand various types of school tasks and assists in the identification of individuals with special abilities or limitations who should receive special educational guidance."[1]

It consists of seven subtests. Tests 1 through 4 make up the Non-Language section and Tests 5 through 7 compose the Language section. Items in the Non-Language section are less dependent upon verbal skills and, therefore, less sensitive to cultural influences. The Language section samples comprehension of verbal and numerical concepts of various types and tests the extent and accuracy of recall. It also measures those abilities more closely related to academically-oriented tasks.

The 1963 revision of the CTMM test utilizes the deviation I.Q. scaled to provide a mean of 100 and a standard deviation of 16 I.Q. points for each age group. The deviation I.Q. expresses the performance of an individual pupil in terms of his deviation from the average performance of individuals of comparable chronological age.

This test was administered to a total of 14,891 students in the second grade in February 1971. Based on 1964 publisher's norms with 50 percentile as the national average, test results in Table 1 show a typical second grader in the State of Hawaii performing as well as the average student on the mainland in the Language section, better than the average student in the Non-Language section and also slightly above norm in the Total score.

---

[1]Elizabeth T. Sullivan, et. al., Examiner's Manual - California Short-Form Test of Mental Maturity (Monterey, California; California Test Bureau, 1963), p.5.

Over a period of years, the performance of the second graders on this test according to percentile mean scores has followed consistently the same pattern - average in Language and slightly above average in Non-Language and Total Mental Factors.

According to percentile scores, all seven districts in the State of Hawaii scored above national norms in both the Non-Language section and the Total score. However, in the Language section, five out of the seven districts scored at or slightly above the national average.

Hawaii norms for the CTMM for grade two have been developed again. See Table 2. These may be used as additional points of reference in interpreting the test results of individuals and groups and in comparing them with our local population in the State and each of the seven districts.

Table 1
Summary of Scholastic Ability Testing*
Grade 2, Administered February 1971
Mean Scores by State and Districts

District	Cases	Language Factors				Non-Language Factors				Total Mental Factors			
		Raw Score	I.Q.	%ile	S.D. of I.Q.	Raw Score	I.Q.	%ile	S.D. of I.Q.	Raw Score	I.Q.	%ile	S.D. of I.Q.
State	14,891	34	99	50	13.5	37	105	69	12.9	72	102	58	13.3
Honolulu	4,070	34	100	50	14.1	38	106	73	13.6	72	103	58	14.2
Central	2,940	35	101	54	12.5	38	105	73	11.8	73	103	62	12.0
Leeward	2,916	34	98	50	14.0	37	103	69	13.1	70	100	54	13.4
Windward	2,317	35	101	54	13.0	38	105	73	12.4	73	104	62	12.7
Hawaii	1,265	34	99	50	12.6	37	104	69	12.5	71	101	58	12.6
Maui	856	33	96	46	13.5	36	102	62	13.2	69	99	54	13.6
Kauai	527	33	97	46	12.2	36	103	62	12.7	69	100	54	12.7
Publisher's Mean		34	100	50	16.0	33	100	50	16.0	68	100	50	16.0

*California Short-Form Test of Mental Maturity, Level 1, 1963 Revision, 1964 Norms.

Table 2
State of Hawaii Norms by I.Q.
California Short-Form Test of Mental Maturity
Grade 2 - 14,891 Cases - February 1971 (70-71)

	%ile	Language Factors	Non-Language Factors	Total Mental Factors
	99	128	133	131
	98	126	129	128
	97	124	127	126
	96	122	126	125
	95	121		124
	94	120	124	122
	93	119	123	121
	92	118	122	
	91			120
	90	117	121	119
	89	116		118
	88	115	120	
	87			117
	86	114	119	
	85	113	118	116
	84			115
	83	112		
	82		117	
	81		116	114
	80	110		
	79	110	115	113
	78			
	77			112
	76	109	114	
Q3	75	108	113	111
	74	108	113	111
	73			
	72	107	112	110
	71			
	70	106		
	69			109
	68		111	
	67	105		
	66		110	108
	65			
	64	104		107
	63		109	
	62			
	61	103		106
	60		108	
	59			
	58		107	105
	57	102		
	56			
	55			104
	54	101		
	53		106	
	52			103
	51	100	105	
Median	50	99	104	102
	49	99		
	48			102
	47		104	
	46			
	45	98		101
	44			
	43		103	
	42			100
	41	97		
	40		102	99
	39			
	38			
	37	96		
	36		101	98
	35			
	34			
	33	95	100	
	32			97
	31			
	30		99	
	29	94		96
	28			
	27		98	
	26			
Q1	25	93	97	95
	24	92	97	
	23			
	22	91		
	21		96	94
	20	90		
	19			
	18	89	95	93
	17	88		92
	16	87		
	15		94	91
	14	86		90
	13	85	93	89
	12	84	92	88
	11		91	87
	10	83	90	86
	9	82	89	85
	8	81	88	84
	7	80	86	83
	6	78	85	81
	5	77	83	80
	4	75	80	77
	3	72	77	75
	2	69	73	71
	1	64	67	65
Hawaii Mean		99	105	102
Publ.'s Mean		100	100	100

California Reading Test

The California Reading Test, Upper Primary Level, was administered to 14,700 second graders in April 1971 to evaluate their reading achievement. Results in Table 3 show that Hawaii students are approximately three months above the national norm group in reading vocabulary, two months above in reading comprehension and two months above in total reading. The 62nd percentile rank indicates performance at the high average level. It means a typical second grader in Hawaii is doing slightly better than the average mainland student on this test when compared with that norm group.

Over a five-year period, the second graders in the State of Hawaii have maintained approximately the same high level of performance. However, the results for this year show a small loss of one month in each of the subtests.

Hawaii norms for the California Reading Test are reported in Table 4. These provide additional points of reference in working with individual students and groups.

Table 3
Summary of California Reading Test*
Grade 2 - Administered April 1971
Mean Scores by State and Districts

District	Cases	Vocabulary				Comprehension				Total			
		Raw	G.P.	%ile	S.D. of G.P.	Raw	G.P.	%ile	S.D. of G.P.	Raw	G.P.	%ile	S.D. of G.P.
State	14,700	27	3.0	62	1.0	23	2.9	62	1.0	50	2.9	62	.9
Honolulu	4,003	29	3.2	69	1.0	25	3.1	66	1.0	54	3.1	69	.9
Central	2,895	28	3.1	66	1.0	23	2.9	62	.9	51	3.0	66	.9
Leeward	2,912	25	2.8	54	1.0	20	2.7	50	.9	45	2.8	54	.9
Windward	2,279	28	3.1	66	1.0	23	2.9	62	1.0	51	3.0	66	1.0
Hawaii	1,248	27	3.0	62	1.0	22	2.9	58	.9	49	2.9	62	.9
Maui	841	26	2.9	58	1.1	22	2.9	58	1.0	48	2.9	58	1.0
Kauai	522	26	2.9	58	1.0	22	2.9	58	.9	48	3.0	58	.9
Publisher's Mean	1,296	24	2.7	50	.7	20	2.7	50	.7	44	2.7	50	.7

*California Reading Test, Upper Primary, Form W, 1957 Edition, 1963 Norms.

Table 4
State of Hawaii Norms
California Reading Test - Upper Primary, Form W
Grade 2 - 14,700 Cases - Spring 1971 (70-71)
By Grade Placement

%ile	Vocab-ulary	Compre-hension	Total	%ile	Vocab-ulary	Compre-hension	Total
99		4.5	4.6	49	3.1	2.9	
98	4.7	4.4	4.5	48			
97		4.3	4.4	47		2.8	2.9
96		4.2	4.3	46	3.0		
95	4.6			45			
94		4.1	4.2	44			
93				43	2.9		2.8
92	4.4		4.1	42		2.7	
91		4.0		41			2.7
90				40	2.8	2.6	
89	4.2			39			
88			4.0	38	2.7		2.6
87		3.9		37		2.5	
86	4.0			36			2.5
85			3.9	35	2.6		
84				34			
83	3.9	3.8		33			
82				32	2.5	2.4	2.4
81			3.8	31			
80	3.8			30		2.3	
79		3.7		29	2.4		2.3
78				28			
77			3.7	27			
76				26	2.3		2.2
Q3 75	3.7	3.6	3.6	Q1 25	2.2	2.2	2.1
74	3.7			24			
73			3.6	23	2.2		
72		3.6		22		2.1	2.1
71				21			
70		3.5		20	2.1	2.0	
69			3.5	19			2.0
68	3.6			18	2.0		
67				17			
66		3.4		16			1.9
65	3.5		3.4	15	1.9	1.9	
64				14			
63				13	1.8	1.8	
62				12			1.8
61	3.4	3.3	3.3	11		1.7	
60				10	1.7		
59				9			
58	3.3			8	1.6		1.7
57		3.2	3.2	7		1.6	
56				6	1.5		1.6
55		3.1		5	1.4	1.5	1.5
54				4	1.3	1.4	
53		3.0	3.1	3	1.2		1.4
52	3.2			2		1.3	1.3
51			3.0	1	1.1	1.0	1.1
Median 50	3.1	2.9	2.9				
				Hawaii Mean	3.0	2.8	2.9
				Publ.'s Mean	2.7	2.7	2.7

SCAT and STEP in Reading, Mathematics and Writing

The School and College Ability Test (SCAT) helps us to estimate the general ability of a student to do school work on the next higher level. It measures two kinds of important school abilities -- verbal and quantitative. The verbal score tells us how well a student understands the meaning of words and comprehends written materials. The quantitative score tells us how well a student can handle number computation and use reasoning in solving number problems. This test was given to all regularly enrolled students in grades four, six, eight, ten and twelve this fall.

The Sequential Tests of Educational Progress (STEP) are special achievement tests in the areas of reading, mathematics, writing, listening, social studies and science. STEP scores tell us how well the student is able to solve new problems in the specific areas by applying his knowledge, skills, concepts and understandings he has already learned. The STEP in reading, mathematics and writing were administered the same time with the SCAT to all students in grades four, six, eight, ten and twelve in the fall. Because the SCAT and STEP tests were developed and standardized together on the same population, performance in achievement on the STEP can be compared with ability on the SCAT in terms of expectations.

Results of the SCAT and STEP are given in Tables 5 and 6 in terms of converted scores with the corresponding percentiles. The scores given are based on the publisher's "national" norms group. Standard deviations are reported for the converted scores.

Table 5
Summary of School and College Ability Test (SCAT)
For Grades 4, 6, 8, 10 & 12, Administered October 1970, Mean Scores by State and District

			Verbal			Quantitative			Total		
District	Grade	Cases	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.
State	4	14,519	238	55	8	246	62	6	247	46	5
	6	14,109	252	56	12	261	47	10	259	51	9
	8	13,428	263	50	14	277	41	16	271	45	12
	10	12,633	271	42	16	287	44	18	279	42	14
	12	10,577	279	42	16	293	51	21	286	49	16
Honolulu	4	3,999	238	55	9	247	62	6	248	64	5
	6	3,836	253	56	13	263	55	11	260	59	9
	8	3,737	265	56	14	280	52	16	273	52	13
	10	4,044	272	46	16	290	54	18	281	48	14
	12	3,692	281	47	16	297	58	20	288	54	16
Central Oahu	4	2,774	238	55	8	246	62	6	247	46	4
	6	2,761	253	56	13	261	47	9	260	59	9
	8	2,517	266	61	13	278	46	15	273	52	11
	10	2,078	274	51	15	289	49	17	281	48	14
	12	1,703	281	47	17	294	55	21	287	49	16
Leeward Oahu	4	2,672	236	46	8	245	51	6	247	46	4
	6	2,434	249	45	12	259	39	9	257	42	8
	8	2,212	262	50	14	275	36	15	269	38	12
	10	1,640	267	34	15	283	36	18	275	31	14
	12	1,282	275	33	16	288	42	22	282	38	17
Windward Oahu	4	2,334	238	55	9	246	62	6	248	64	5
	6	2,291	252	56	13	261	47	10	259	51	9
	8	2,014	263	50	14	277	41	15	271	45	12
	10	1,908	270	42	16	285	40	18	278	42	14
	12	1,460	279	42	16	292	51	20	286	49	16

Table 5 - SCAT Test (Cont'd)

District	Grade	Cases	Verbal			Quantitative			Total		
			Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.
Hawaii	4	1,272	237	46	8	246	62	6	247	46	4
	6	1,340	250	5[illegible]	12	259	39	10	257	42	8
	8	[illegible],418	26[illegible]	45	13	276	41	15	270	45	11
	10	1,383	269	38	15	287	44	19	278	42	14
	12	1,140	277	38	16	291	47	22	284	44	17
Maui	4	926	236	46	8	245	51	6	247	46	5
	6	899	249	45	12	260	47	9	258	51	8
	8	871	261	45	13	275	36	14	269	38	11
	10	884	269	38	15	286	44	18	277	37	14
	12	753	276	38	15	289	42	21	282	38	16
Kauai	4	542	237	46	8	245	51	6	247	46	5
	6	548	249	45	11	259	39	10	257	42	8
	8	659	260	45	13	273	30	14	268	38	11
	10	624	269	38	14	285	40	16	277	37	13
	12	547	275	33	16	288	42	21	281	32	15
Publisher's	4	3,065	238	55	9	244	51	6	247	46	5
	6	2,211	252	56	13	261	47	10	259	51	9
	8	4,494	263	50	14	280	52	14	272	52	11
	10	6,471	273	46	15	288	49	17	281	48	13
	12	3,838	282	51	15	292	51	18	287	49	14

Table 6
Summary of Sequential Tests of Educational Progress (STEP)
For Grades 4, 6, 8, 10 & 12, Administered October 1970, Mean Scores by State and Districts

Districts	Grade	Cases	Reading			Mathematics			Writing		
			Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.
State	4	14,519	241	46	13	237	51	8	240	45	13
	6	14,109	258	54	18	248	42	12	254	40	15
	8	13,428	270	50	19	259	43	14	265	47	18
	10	12,633	282	43	19	267	39	17	277	49	18
	12	10,577	290	40	20	275	42	18	285	42	19
Honolulu	4	3,999	243	50	14	238	62	8	242	52	13
	6	3,836	260	58	18	250	48	12	256	44	15
	8	3,737	272	54	19	261	50	15	267	51	19
	10	4,044	283	43	19	269	43	17	279	53	18
	12	3,692	293	44	19	278	51	18	288	53	19
Central Oahu	4	2,774	242	50	13	238	62	8	241	45	13
	6	2,761	260	58	17	250	48	11	256	44	15
	8	2,517	273	54	18	261	50	14	268	56	18
	10	2,078	285	49	18	269	43	16	280	58	17
	12	1,703	293	44	19	276	47	18	288	53	19
Leeward Oahu	4	2,672	239	43	12	236	51	7	239	39	12
	6	2,434	254	46	17	246	36	12	251	33	15
	8	2,212	267	42	18	257	38	14	262	44	18
	10	1,640	278	35	19	264	35	17	274	43	17
	12	1,282	285	26	21	270	33	19	281	33	19
Windward Oahu	4	2,334	242	50	14	237	51	8	240	45	13
	6	2,291	258	54	18	248	42	12	253	36	16
	8	2,014	268	45	19	259	43	14	262	44	18
	10	1,980	280	39	19	266	39	17	273	39	18
	12	1,460	288	35	20	274	42	18	281	33	19

Table 6 - Summary of STEP Tests (Cont'd)

District	Grade	Cases	Reading			Mathematics			Writing		
			Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.
Hawaii	4	1,272	240	46	12	236	51	7	240	45	12
	6	1,340	255	46	17	246	36	12	252	36	14
	8	1,418	268	45	19	258	43	14	264	47	18
	10	1,383	280	39	19	266	39	17	277	49	18
	12	1,140	289	35	20	275	42	17	284	42	19
Maui	4	926	240	46	13	236	51	7	239	39	12
	6	899	255	46	17	245	31	12	251	33	15
	8	871	268	45	18	257	38	14	264	47	18
	10	884	279	35	19	266	39	16	274	43	17
	12	753	287	30	19	272	37	18	280	33	18
Kauai	4	542	239	43	12	236	51	7	238	39	12
	6	548	255	46	16	245	31	11	252	36	14
	8	659	266	42	18	256	38	13	262	44	17
	10	624	277	39	17	266	39	17	277	49	17
	12	547	287	35	19	272	37	17	283	39	18
Publisher's	4	638	243	50	14	237	51	8	242	52	13
	6	464	257	51	18	250	48	12	259	48	16
	8	925	270	50	17	260	50	14	266	51	17
	10	1,312	284	49	18	269	43	17	276	49	16
	12	790	294	48	17	276	47	16	287	48	17

Interpretation and Use of Test Data

Since a test score is only an estimate of performance, percentile bands sometimes called "confidence intervals," are used by many test publishers to take into account errors in measurement. These also act as safeguards against interpreting a score as more precise than it really is.

Results of the SCAT (Table 5) show that a typical fourth, sixth, and eighth grade student in the State of Hawaii performed as well as the national norm groups in the verbal area, while both the tenth and twelfth graders fell below national average in this area -- that is, the ability to understand the meaning of words and to comprehend written materials. This means that many of our students in grades 10 and 12 would have difficulty in courses like English and Composition which demand a certain degree of facility in verbal ability.

In the quantitative area, a typical student in grades 4, 6, and 12 in the State of Hawaii was performing at or above the publisher's national norm groups. However, the typical student in grades 8 and 10 was achieving below national average level in this area. It means that more than half of our students performed slightly better than the national comparative norm groups in the area of numerical computation and numerical reasoning in solving problems and could compete well with mainland students in mathematics and science.

In general over-all performance on the SCAT, as revealed by the Total score, a typical student in grades 4, 6 and 12 compared well with the national norm groups. However, the performance of both the eighth and tenth graders dipped slightly below national average this year.

Table 6 gives results of performance of a typical student in the achievement areas of reading, mathematics and writing. In reading achievement, a typical eighth grader was achieving at national average level while a sixth grader was performing slightly above average. The performance of students in these two grades was consistent with expectations when compared with the SCAT verbal ability scores. A typical fourth grader was achieving not only slightly below national average level in reading but also below expectation. Although the tenth and twelfth graders were below the national average in reading, their performance was commensurate with their SCAT verbal ability scores.

In mathematics achievement, a typical student in grade 4 was performing at national norm level. However, students in grades 6, 8, 10 and 12 in Hawaii were achieving below national average this year. In comparing achievement with the SCAT quantitative ability scores, only the eighth graders were achieving according to expectations in mathematics.

In the writing area, the typical tenth grader was achieving at national norm level. Students in grades 4, 6, 8 and 12 were performing below the national average this year. Students in grades 4 and 6 were not only below national norm in writing but also their performance was below expectation when compared to their SCAT verbal ability scores. While the performance of a typical student in grade 8 is slightly below expectation, the tenth grader did slightly better than expected in writing. The twelfth graders were performing as well as expected in terms of their ability.

For proper interpretation and use of test results, see the appropriate manuals for SCAT and STEP and also Testing in Hawaii Schools, January 1968, pages 31-37 and 41-67. The latter includes expectancy tables which have been developed by the State Testing Office showing predictions of probable Scholastic Aptitude Test (SAT) scores on the College Entrance Examination Board based on the tenth grade SCAT scores of Hawaii students. Expectancy tables showing chances of success in algebra in the ninth grade based on the eighth grade STEP Mathematics scores of our students are also included. These are helpful tools to aid counselors and school staff members in the counseling and guidance of students.

Local or State of Hawaii norms have been developed for each of the SCAT and STEP tests administered last fall to our students. See Tables 7 to 11. Since these norms are more specific, they should provide a more meaningful and useful basis for interpreting test results of Hawaii's pupils with similar curricula, organization, geographical environment, and type of pupils. Here is an example to illustrate the use of state norms in interpreting scores. Paul took the STEP in Reading in the tenth grade and made a converted score of 289. When this is compared to the publisher's or national norms group, his percentile band and percentile are 49-67 and 59, respectively. However, when his converted score of 289 is compared with the State of Hawaii norms group (see Table 10), his percentile rank is 61.

Table 7
State of Hawaii Norms - Grade Four - 14,519 Cases
School and College Ability Test (SCAT) 5A and
Sequential Tests of Educational Progress (STEP) 4A for September 1970
Converted Scores

	SCAT			STEP		
Percentile	Verbal	Quantitative	Total	Reading	Mathematics	Writing
99	262	265	262	279	260	275
98	258	261	259	275	257	271
97	256	258	258	270	256	268
96	254	257	257	268	253	265
95	252		256	266	252	264
94	251			265		262
93		256	255	263	251	261
92	250	255		261	250	260
91	249		254			259
90		254		260	249	
89	248			259		258
88		253		257	247	257
87	247		253	256		
86				255		255
85	246	252			246	254
84			252			
83	245			254	245	253
82				253		
81	244					251
80		251		252	244	
79			251	251		
78						250
77		250		250		
76	243				242	
Q_3 75	242	249	250	249	241	249
74				249		
73	242	249	250			248
72				248	241	
71				247		
70						247
69						
68	241					
67				246	240	
66			249			246
65	240			245		
64		248				
63				244		
62					238	244
61				243		
60						
59		247				
58	239					243
57			248	242		
56					237	
55	238			241		
54						
53		246				241
52				240		
51						
Median 50	237	245	247	239	236	239

Table 7 -- Grade Four SCAT-STEP State Norms
For September 1970 by Converted Score--(Cont'd)

Percentile	SCAT Verbal	SCAT Quantitative	SCAT Total	STEP Reading	STEP Mathematics	STEP Writing
49						
48	237		247	238		
47		245				239
46						
45				237		
44	236					
43	43					
42				236	234	
41						237
40	235	244				
39				235		
38			246			
37						
36	234			234		
35					232	235
34						
33		243				
32						
31						
30						
29			245	232		
28						233
27	233				231	
26		242				
Q_1 25	232	241	241	231	230	230
24						
23	232					
22				230		230
21						
20			244			
19	231	241				
18				229		
17						228
16						
15	230		243	228		
14		240				
13						
12				227		225
11	228					
10		238	242			
9						
8	227					
7			241			
6	225					
5						
4						
3						
2						
1	224	237	240	226	230	223
Hawaii Mean	238	246	247	241	237	240
Publisher's Mean	238	244	247	243	237	242
Publisher's Median	238	245	247	243	237	242

Table 8
State of Hawaii Norms - Grade Six - 14,109 Cases
State and College Ability Test (SCAT) 4A and
Sequential Tests of Educational Progress (STEP) 4B for September 1970
Converted Scores

	SCAT			STEP		
Percentile	Verbal	Quantitative	Total	Reading	Mathematics	Writing
99	284	287	281	298	274	286
98	281	282	279	295	270	282
97	277	281	277			280
96	276	280	276	292	269	279
95	274	279	275		267	
94	273	277	274	289		278
93	272	276	273	286	266	276
92						
91	270	275	272		265	275
90	269			283		
89	268	274	271		264	274
88				280		
87	266	273			263	272
86			270			
85	265	272		278	261	
84			269			270
83	264	270				
82	263			276	260	269
81			268			
80	262	269				
79			267	274	259	267
78	261					
77		268				266
76			266	271	258	
Q_3 75	260	267	265	269	257	265
74		267				265
73	259		265		257	
72				269		
71						264
70		266	264	267	256	
69	258					
68						262
67			263	265	254	
66	257	265				
65						261
64	256		262	263		
63					253	260
62	255	264				
61				261		
60			261		252	259
59	254					
58				260		
57	253	262				258
56			260	259	251	
55	252					
54				257		257
53		261	259		250	
52	251					256
51				256		
Median 50	250	260	258	255	249	254

Table 8 -- Grade Six SCAT-STEP State Norms
For September 1970 by Converted Score--(Cont'd)

Percentile	SCAT Verbal	SCAT Quantitative	SCAT Total	STEP Reading	STEP Mathematics	STEP Writing
49			258	255	249	254
48						
47	250	260		254		253
46					247	
45	249			253		
44			257			252
43						
42	248				245	251
41		259		252		
40	247		256			250
39					244	
38				251		249
37	246			250		
36		257	255			
35				249	243	248
34	245					
33			254	248		247
32					241	
31	244					
30		256				246
29				247	240	
28	243		253			244
27				246		
26				245		
Q_1 25	242	254	252	244	239	243
24		254	252	244		
23						
22				243	238	241
21	241					
20						
19		253	251	242	236	240
18	240			241		
17						
16				240		238
15	239			239	235	
14			250			
13		251		238		236
12				237	233	
11	237					234
10			249	236	231	
9		248		235		
8	236		248	234		232
7				233		
6	234	246	247			229
5				232		
4		244	246	231		227
3				230		
2				229		
1	232	242	245	226	230	225
Hawaii Mean	252	261	259	258	248	254
Publisher's Mean	252	261	259	257	250	259
Publisher's Median	250	262	259	257	251	259

Table 9
State of Hawaii Norms - Grade Eight - 13,428 Cases
School and College Ability Test (SCAT) 3A and
Sequential Tests of Educational Progress (STEP) 3A for September 1970
Converted Scores

		SCAT			STEP		
	Percentile	Verbal	Quantitative	Total	Reading	Mathematics	Writing
	99	295	316	300	306	293	310
	98	292	311	297	303	289	304
	97	289	309	295	302	285	300
	96	288	306	293	300	283	297
	95	286	305	292	299	282	295
	94	285	303	291			293
	93				298	281	
	92	284	302	290	296	279	291
	91	283	300	289			
	90	282		288	295	277	289
	89		299				287
	88	281		287	293	276	
	87	280	297	286			
	86		296	285	292	275	285
	85	279					
	84	278	294		290	274	284
	83			284			
	82	277	292		289	273	282
	81			283			
	80	276		282			
	79		291		288	272	281
	78	275					
	77			281	287	270	
	76	274	289				280
Q_3	75	273	288	280	285	269	278
	74		288			269	278
	73	273					
	72			279	284		
	71	272	286			268	277
	70			278	283		
	69						
	68	270	284	277	281	266	276
	67						
	66	269			280		
	65					265	275
	64		282	276			
	63	268		275	279		
	62						273
	61		281		277	264	
	60	267					
	59			274	276		271
	58						
	57	266	279			263	268
	56			273	274		
	55	265					
	54			272	273		
	53		277			261	266
	52	263					
	51			271	271		
Median	50	262	275	270	270	260	265

Table 9 -- Grade Eight SCAT-STEP State Norms
For September 1970 by Converted Score--(Cont'd)

	SCAT			STEP		
Percentile	Verbal	Quantitative	Total	Reading	Mathematics	Writing
49	262	275	270	270	260	
48						
47						263
46				268		
45	261		269			
44		273		267		261
43			268		259	
42	260					
41				265		259
40			267			
39		272		263		
38	259				257	257
37						
36			266	262		
35	257					255
34			265	260		
33		270			254	
32						
31	256			259		253
30						
29			264	257		
28						
27	255	268	263		252	251
26				255		
Q1 25	253	266	262	254	250	250
24	253		262			250
23				254		
22		266	261		250	
21				252		
20	252		260			248
19						
18				250		
17						
16	250	264		249	247	246
15			259			
14						
13	248			247		
12		261	258		244	244
11				245		
10	246		257			
9				244		242
8		258	256		238	
7	244		255	242		
6						240
5	242	255	254	240	233	
4			253	238		237
3				236		
2						
1	239	252	252	234	230	234
Hawaii Mean	263	277	271	270	259	265
Publisher's Mean	263	280	272	270	260	266
Publisher's Median	263	281	272	271	261	266

Table 10
State of Hawaii Norms - Grade Ten - 12,633 Cases
School and College Ability Test (SCAT) 2A and
Sequential Tests of Educational Progress (STEP) 2A for September 1970
Converted Scores

		SCAT			STEP		
	Percentile	Verbal	Quantitative	Total	Reading	Mathematics	Writing
	99	307	328	312	320	300	317
	98	303	323	308	318	296	313
	97	300	321	306	316	295	311
	96	298	319	304	314	292	309
	95	297	317		312	291	
	94	296		302	311	290	306
	93	295	315	301			
	92	293		300	309	289	304
	91	292	313	299			300
	90			298	307	287	
	89	291	311		305	286	
	88	290		297			299
	87	289		296	304	285	
	86		309				297
	85	288		295	302	284	
	84		308	294			295
	83	287				283	
	82	286		293	301		
	81		306				293
	80	285		292	299	282	
	79						
	78	283	304	291	298		292
	77					280	
	76	282		290	296		
Q_3	75	281	302	289	295	278	290
	74			289	295	278	
	73	281					
	72		300	288			289
	71	280		287	294	277	
	70						
	69	279	298		292		287
	68						
	67			286		275	
	66	277	297	285	291		286
	65						
	64	276			290		
	63		295	284			284
	62					274	
	61	275		283	289		
	60						283
	59		293				
	58	274		282	287		
	57						
	56		291	281	286	272	281
	55	272					
	54				285		
	53		289				280
	52	271		280			
	51			279	284	270	
Median	50	270	288	278	283	268	278

Table 10 -- Grade Ten SCAT-STEP State Norms
For September 1970 by Converted Score--(Cont'd)

Percentile	SCAT Verbal	SCAT Quantitative	SCAT Total	STEP Reading	STEP Mathematics	STEP Writing
49				283		
48	270					
47		286	278			277
46			277	282		
45	268				268	
44		284		280		275
43						
42		283	276	279		
41	267					
40			275	278		274
39		281				
38	265			276	265	
37			274			271
36		279				
35			273	275		
34	264					268
33		277	272	273		
32						
31				272	263	266
30		276	271			
29	262		270	270		
28						
27		274	269	269		264
26	260					
Q1 25	258	272	268	267	260	262
24		272			260	262
23				265		
22	258		267			
21		271				
20			266	263		260
19						
18	256	269	265	262	256	
17			264			258
16				260		
15		267	263			
14	254		262	259		256
13					251	
12		266	261	257		
11	252					254
10			260	255		
9	250	264	259			251
8				254	242	
7		262	258	252		
6	248		257			250
5		260	256	250		
4	246		255	248		248
3	243	258	254	247		
2			253			
1	241	255	252	245	230	247
Hawaii Mean	271	287	279	282	267	277
Publisher's Mean	273	288	281	284	269	276
Publisher's Median	275	289	281	285	271	277

Table 11
State of Hawaii Norms - Grade Twelve - 10,578 Cases
School and College Ability Test (SCAT) 2B and
Sequential Tests of Educational Progress (STEP) 2B for September 1970
Converted Scores

		SCAT			STEP		
	Percentile	Verbal	Quantitative	Total	Reading	Mathematics	Writing
	99	314	335	319	326	308	326
	98	311	331	317	323	305	321
	97			315		303	
	96	308	328	313	321	302	318
	95	306	325	312		300	316
	94	304		311	319	299	
	93		323	310			314
	92	302		309	317	297	
	91	301		308			312
	90		321	307		296	
	89	300		306	315		310
	88					295	
	87	298	319	305			
	86			304	313	294	307
	85	297					
	84		317	303		292	
	83	296			311		305
	82		315	302			
	81	295		301		291	
	80				309		302
	79	294				290	
	78		313	300			
	77	293		299	307		300
	76					288	
Q_3	75	292	311	298	305	287	298
	74	291		298	305		298
	73			297		287	
	72	290	309				
	71				304	286	296
	70	289		296			
	69			295			
	68	288	307		302	285	294
	67			294			
	66	287					
	65		305	293	301	284	
	64	286					293
	63						
	62	285	303	292	299	283	
	61			291			291
	60	284					
	59		301		297	282	
	58	283		290			
	57			289			290
	56	282			296		
	55		299			280	
	54	280		288			289
	53			287	295		
	52		297			278	287
	51	279					
Median	50	278	295	286	293	277	286

Table 11 -- Grade Twelve SCAT-STEP State Norms
For September 1970 by Converted Score--(Cont'd)

Percentile	SCAT Verbal	SCAT Quantitative	SCAT Total	STEP Reading	STEP Mathematics	STEP Writing
49	278					286
48			285	292	277	
47	277	293				
46						284
45			284	290	275	
44	276	291	283			
43						283
42	275			289		
41		290	282		273	
40			281	288		281
39	274	288				
38				286		
37	273		280		271	280
36		286		285		
35			279			278
34	271	284		284		
33			278		269	
32		282		283		277
31	270					
30			277	282		275
29	269	280	276			
28				280	267	
27		279	275	279		274
26	267					
Q_1 25	266	277	274	278	264	271
24	266		273			271
23		275		276	264	
22						268
21	265	273	272	275		
20			271	273		266
19		272				
18	263		270	271	262	
17		270	269	269		264
16			268	268		
15	262	268	267			262
14			266	266	258	
13	260	266		264		
12			265			260
11		264		263		
10	258		264	261	254	258
9		262	263	259		
8	256		262			257
7		260	261	257	247	
6	255		260	255		255
5	253	258	259	254	237	252
4			258	252		
3	251		256	250		250
2	249		255	247		249
1	244	255	253	245	230	247
Hawaii Mean	279	293	286	290	275	285
Publisher's Mean	282	292	287	294	276	287
Publisher's Median	283	293	287	296	278	287

Sequential Tests of Educational Progress (STEP) in Science, Social Studies and Listening

In February 1971, the STEP in Science, Social Studies and Listening were administered to all fifth, seventh, ninth, eleventh and twelfth graders throughout the State. Test results for the State and the seven districts are reported in Table 12 in terms of grade, number of cases, converted score and the corresponding percentile. Standard deviations are given for the converted scores. All test scores are based on the publisher's "national" norm group with interpolation for mid-year since the tests were administered in February.

The STEP in Science measures how well the student is able to recognize scientific problems, to interpret information to draw conclusions from information given, to evaluate statements by others, and to work out problems using the problem-solving method.

Results on the test for this year show a typical student in the ninth grade in the State of Hawaii performing as well as the publisher's national norm group.

The typical fifth, seventh and twelfth grade student is achieving below the national average while the typical eleventh grader is again trailing behind.

The STEP in Social Studies measures how well the student is able to read and interpret maps, charts, diagrams and the printed word, to see relationships among basic facts, trends and concepts, and to analyze critically materials pertaining to effective citizenship in our society.

Results on this test this year show a typical student in the seventh grade achieving as well as the national norm group. Although the ninth and

Table 12
Summary of Sequential Tests of Educational Progress (STEP)
For Grades 5, 7, 9, 11 & 12 - Administered February 1971
Mean Scores by State and Districts

District	Grade	Cases	Science			Social Studies			Listening		
			Conv.S.	Mid-%ile	S.D.*	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.
State	5	14,316	252	43	13.2	246	39	10.5	262	35	14.3
	7	13,394	263	41	13.0	258	50	13.2	269	33	14.7
	9	13,035	272	52	14.5	266	45	16.5	278	39	17.5
	11	11,046	276	33	13.5	275	43	15.0	285	35	17.0
	12	9,446	280	48	13.7	277	41	16.2	287	31	17.2
Honolulu	5	3,896	254	48	13.3	247	39	10.5	263	35	14.5
	7	3,717	265	50	13.4	260	56	13.7	271	39	15.2
	9	3,843	274	60	14.5	269	52	17.0	281	44	17.5
	11	3,570	279	39	13.2	278	54	14.7	288	46	16.4
	12	3,097	282	55	13.5	280	52	15.5	290	46	16.7
Central Oahu	5	2,784	255	48	12.7	248	46	10.3	264	38	13.0
	7	2,611	765	50	12.4	261	56	13.0	271	39	13.4
	9	2,413	274	60	13.8	268	52	15.9	281	44	16.1
	11	1,813	278	39	13.2	278	54	15.3	289	46	16.3
	12	1,604	281	48	13.8	280	52	16.8	289	40	17.3
Leeward Oahu	5	2,523	251	38	12.9	244	34	10.0	258	26	14.5
	7	2,279	260	36	12.6	256	43	12.9	268	33	15.0
	9	1,928	269	36	14.4	262	31	15.8	275	29	17.0
	11	1,336	272	23	13.2	270	33	14.4	279	20	16.4
	12	1,063	275	26	13.3	271	25	15.4	280	19	16.6
Windward Oahu	5	2,309	253	43	13.4	246	39	10.7	262	35	14.0
	7	2,005	262	42	13.0	257	43	13.5	268	33	14.7
	9	1,994	270	43	15.5	265	37	17.1	278	39	17.4
	11	1,686	276	33	14.2	273	39	15.0	284	35	17.3
	12	1,366	278	39	13.9	275	35	16.1	285	27	17.3

*Based on coverted scores.

Table 12 - Summary of STEP Tests
For February 1971 (contd.)

District	Grade	Cases	Science			Social Studies			Listening		
			Conv.S.	Mid-%ile	S.D.*	Conv.S.	Mid-%ile	S.D.	Conv.S.	Mid-%ile	S.D.
Hawaii	5	1,294	251	38	13.6	245	34	10.6	260	29	14.4
	7	1,323	262	42	13.2	257	43	12.7	269	33	14.6
	9	1,342	273	52	14.2	265	37	16.8	278	39	17.8
	11	1,249	276	33	12.8	274	43	14.6	284	35	17.2
	12	1,073	281	48	14.0	276	41	15.8	286	31	17.3
Maui	5	938	250	38	13.4	245	34	10.5	259	26	15.2
	7	869	262	42	12.9	256	43	13.1	268	33	15.0
	9	896	271	43	13.5	263	31	15.0	271	20	16.3
	11	812	274	28	12.7	270	33	12.8	279	20	15.9
	12	713	279	39	13.8	272	30	15.0	283	21	17.7
Kauai	5	572	249	32	12.7	243	28	9.6	257	24	13.1
	7	590	260	36	11.3	255	38	11.2	267	29	14.1
	9	619	269	36	12.8	262	31	14.7	276	34	17.7
	11	580	275	28	13.1	272	39	13.8	282	27	16.8
	12	530	279	39	12.5	275	35	14.8	287	31	16.1
Publisher's Mean	5	1,520	254	48	13.0	251	53	11.0	266	48	15.0
	7	1,643	264	50	12.0	259	50	13.0	275	50	15.0
	9	2,866	273	52	12.0	268	52	13.0	282	50	15.0
	11	1,736	280	46	13.0	277	49	13.0	290	54	15.0
	12	1,700	283	55	12.0	280	52	15.0	293	52	15.0

*Based on converted scores.

eleventh graders are performing slightly below national average level, the fifth and twelfth graders are very much below norm.

The STEP in Listening measures how well the student is able to comprehend main ideas and remember important details of what is said to him, to interpret the implied meanings of a message, and to evaluate and apply the material presented. This is important for classroom learning since much of what the student learns is spoken aloud to him.

Results of this test show our students tested in grades five, seven, nine, eleven and twelve performing below the publisher's national norm groups. The performance of the ninth and eleventh graders has remained at the same level as that of last year. However, there was a slight loss this year for the fifth, seventh and twelfth graders. Our consistently low performance may mean that our students lack the essential listening skills as measured by this test. If the concepts and understandings are relevant and important to us, more emphasis may need to be directed toward developing critical and selective listening in our schools.

Interpretation and Use of Test Data

For proper interpretation and use of test results, see the appropriate STEP manuals and also Testing in Hawaii Schools, January 1968, pages 41-48. These should give us direction, meaning and implications to aid in planning our educational activities.

Local or State of Hawaii norms have been developed for each of the STEP tests administered this spring to our students. See Tables 13 to 17. State of Hawaii Norms are presented in consecutive percentiles for the corresponding converted scores for each test to give a finer breakdown in working with the test

results of students. Here is an example to illustrate the use of state norms in interpreting scores. Paul took the STEP Listening test in the ninth grade and made a converted score of 282. When this is compared to the publisher's or national norm group, his percentile band and mid-percentile scores are 39-61 and 50, respectively. However, when his converted score of 282 is compared with the State of Hawaii norms group (see Table 15), his percentile rank is 59.

Table 13
State of Hawaii Norms by Converted Scores
Sequential Tests of Educational Progress (STEP) 4A
Grade 5 - Administered February 1971 - 14,316 Cases

	%ile	Sci.	Soc. St.	List.		%ile	Sci.	Soc. St.	List.
	99	280	271	294		49		246	262
	98	277	269	288		48	253		
	97		268	286		47		245	261
	96	275	266			46	252		
	95		265	284		45			
	94	273	263			44		244	260
	93		262	282		43	251		
	92	271				42			259
	91		261	280		41	250		
	90		260			40			
	89	269		279		39	249	243	
	88		259			38			258
	87			278		37	248	242	
	86	267	258			36			257
	85					35			
	84	266	257	276		34			256
	83					33			
	82		256	275		32	247	241	255
	81	264				31			
	80		255			30	246		254
	79			274		29		240	
	78					28	245		253
	77	263	254	273		27		239	
	76					26	244		
Q_3	75	262	253	271	Q_1	25	243	238	252
	74	262		271		24	243		252
	73					23			251
	72		252			22		238	
	71	261		270		21	242		250
	70					20		237	249
	69			269		19	240		
	68	260				18			248
	67		251			17	239	236	247
	66			268		16			
	65	259	250			15	238	235	246
	64			267		14			245
	63					13	237	234	
	62	258	249			12			244
	61			266		11	235	233	243
	60					10			242
	59	257				9	234	232	
	58			265		8			240
	57		248			7	232	231	239
	56	256		264		6			238
	55		247			5	230	230	237
	54					4	228	229	235
	53	255				3	226	228	234
	52					2		227	231
	51	254		263		1	223	226	228
Median	50	253	246	262					

Hawaii Mean	252	246	261
Publ.'s Mean	254	251	266
Publ.'s Median	256	251	267

Table 14
State of Hawaii Norms by Converted Scores
Sequential Tests of Educational Progress (STEP) 3A
Grade 7 - Administered February 1971 - 13,394 Cases

	%ile	Sci.	Soc. St.	List.	%ile	Sci.	Soc. St.	List.
	99	294	291	306	49			269
	98	290	287	301	48			
	97	288	285	299	47		257	
	96	286	283	296	46	262		268
	95	285		294	45		256	
	94		281		44			
	93	283	279	292	43	261		267
	92			290	42		255	
	91	281	277		41			
	90			289	40	260	254	266
	89	280	276		39			
	88			288	38		253	265
	87	278	274	286	37	259		
	86				36			
	85	277	272	285	35		252	264
	84				34			
	83	275		284	33	258		
	82		271		32			263
	81			282	31			
	80	274	270		30	256	251	262
	79			281	29			
	78	273	268		28		250	
	77			280	27			261
	76				26	255	249	
Q_3	75	272	267	279	25 Q_1	253	248	260
	74			279	24			
	73	271			23	253	248	
	72		266	278	22			258
	71				21		247	
	70	270	265		20			257
	69			277	19	252		
	68				18		246	256
	67	269	264	276	17			
	66				16	250	245	255
	65			275	15			
	64	268	263		14		243	253
	63				13	248		
	62		262	274	12		242	252
	61	267			11			
	60			273	10	246	241	251
	59		261		9			
	58	266			8		240	249
	57		260	272	7	244		248
	56				6		239	246
	55	265			5	242	238	245
	54		259	271	4	240		243
	53				3		236	242
	52	264	258	270	2			240
	51				1	237	234	236
Median	50	263	257	269				

Hawaii Mean	263	258	269
Publ.'s Mean	264	259	275
Publ.'s Median	265	260	276

Table 15
State of Hawaii Norms by Converted Scores
Sequential Tests of Educational Progress (STEP) 3B
Grade 9 - Administered February 1971 - 13,035 Cases

	%ile	Sci.	Soc. St.	List.		%ile	Sci.	Soc. St.	List.
	99	315	311	319		49			
	98	306	304	315		48			277
	97	302	301	312		47	270	263	
	96	299		310		46			
	95		298			45			276
	94	296	295	308		44		262	
	93			306		43	269		275
	92	294	292			42		261	
	91			304		41			274
	90	291	290			40	268		
	89			302		39		260	273
	88	289	288			38			
	87			300		37		259	272
	86		286			36	267		
	85	287		298		35			271
	84		284			34		258	
	83			296		33	266		
	82	285	282			32		257	
	81			295		31			270
	80					30	265	256	269
	79	284	280	293		29			
	78					28		255	268
	77		278	292		27	264		
	76					26		254	267
Q_3	75	282	276	290	Q_1	25	263	253	266
	74		276			24	263		266
	73			289		23			265
	72	280				22		253	
	71		274			21	262		264
	70			288		20		252	263
	69					19	261		
	68	278	273	286		18		251	262
	67					17	260		261
	66		271	285		16		250	
	65	277				15			260
	64			284		14	258	249	259
	63		270			13		248	258
	62					12	257		
	61	275		283		11		247	257
	60		268			10	256	246	255
	59			282		9			254
	58	274	267			8	254	245	
	57			281		7	252	244	253
	56					6			252
	55		266			5	250	242	251
	54	272		280		4	248	241	249
	53					3	246	240	248
	52		265	279		2	244	237	247
	51					1	242	235	244
Median	50	271	264	278					
					Hawaii Mean		272	266	278
					Publ.'s Mean		273	268	282
					Publ.'s Median		273	268	283

Table 16
State of Hawaii Norms by Converted Scores
Sequential Tests of Educational Progress (STEP) 2A
Grade 11 - Administered February 1971 - 11,046 Cases

	%ile	Sci.	Soc. St.	List.
	99	308	310	323
	98	305	307	318
	97	303	304	316
	96	302	303	
	95	300	301	314
	94	298	299	312
	93			
	92	297	298	310
	91	295	297	
	90		295	308
	89	294		
	88		294	306
	87			
	86	292	292	304
	85			
	84		291	303
	83	290		
	82		290	301
	81	289		
	80		288	
	79			300
	78		287	
	77	287		298
	76			
Q_3	75	286	286	297
	74	286		
	73		285	
	72			295
	71			
	70	284	283	294
	69			
	68			
	67		282	293
	66	282		
	65			292
	64		280	
	63			
	62	281		290
	61		279	
	60			
	59			289
	58	279	278	
	57			288
	56			
	55		277	
	54			287
	53	277		
	52			
	51		275	286
Median	50	276	274	284

	%ile	Sci.	Soc. St.	List.
	49	276		
	48		274	284
	47			
	46			283
	45			
	44	274	272	
	43			282
	42			
	41		271	
	40			281
	39	273		
	38			280
	37		270	
	36			
	35			278
	34	271	268	
	33			
	32			277
	31		267	
	30			276
	29	269		
	28		265	
	27			274
	26			
Q_1	25	267	264	273
	24	267		
	23			
	22		262	272
	21			
	20			270
	19	265	261	
	18			
	17			269
	16		259	
	15	263		267
	14			
	13		258	266
	12			
	11	261	256	264
	10			
	9			262
	8	259	255	261
	7			
	6	257	253	259
	5			257
	4	255	252	255
	3	252	250	253
	2		248	251
	1	249	247	246

	Sci.	Soc. St.	List.
Hawaii Mean	276	275	285
Publ.'s Mean	280	277	290
Publ.'s Median	281	277	289

Table 17
State of Hawaii Norms by Converted Scores
Sequential Tests of Educational Progress (STEP) 2B
Grade 12 - Administered February 1971 - 9,446 Cases

	%ile	Sci.	Soc. St.	List.
	99	311	312	327
	98	308	309	322
	97	307	307	319
	96	305	306	317
	95	303	305	
	94		303	315
	93	302	302	313
	92			
	91	300	300	311
	90	298	299	
	89			309
	88		298	
	87	297		307
	86		296	
	85	295		305
	84		295	
	83			
	82	294	294	303
	81			
	80		293	302
	79	292		
	78		291	
	77			300
	76	291	290	
Q_3	75	289	289	299
	74		289	
	73			
	72	289	288	297
	71			
	70			
	69		286	296
	68	287		
	67		285	295
	66			
	65		284	
	64	286		293
	63			
	62		283	
	61			292
	60	284	282	
	59			
	58		280	291
	57			
	56	283		290
	55		279	
	54			
	53		278	289
	52			
	51	281		
Median	50	279	277	287

%ile	Sci.	Soc. St.	List.
49			
48		275	
47	279		286
46			
45		274	
44			285
43	278	273	
42			284
41			
40		272	
39	276		282
38		270	
37			
36			281
35	275	269	
34			280
33			
32		268	
31			279
30	273		
29		266	277
28			
27			
26	272	265	276
Q_1 25	270	264	275
24			275
23		264	
22	270		
21			274
20		262	
19			270
18	268		
17		261	271
16			
15	266	259	270
14			268
13			
12	264	258	267
11			
10		257	265
9	262		263
8		255	
7	260		262
6		254	260
5	258	252	258
4			256
3	256	251	254
2	253	249	250
1	251	247	245

	Sci.	Soc. St.	List.
Hawaii Mean	280	277	287
Publ.'s Mean	283	280	293
Publ.'s Median	281	280	291

Differential Aptitude Test Battery

The purposes of administering this multi-aptitude test battery are to help the student discover and assess his aptitudes or potential in learning in terms of strengths and weaknesses, understand what these aptitudes mean to him, and apply these understandings in planning his educational and vocational activities.

The eight tests in the battery include:

Verbal Ability - measures ability to think and reason with words.

Numerical Ability - measures ability to think and reason with numbers.

Abstract Reasoning - measures ability to think and solve problems independently of words and numbers.

Mechanical Reasoning - measures understanding and application of common principles of physics functioning in everyday appliances.

Space Relations - measures power to visualize solids and structural shapes.

Clerical Speed and Accuracy - measures speed and accuracy in comparing and marking letters and number symbols.

Spelling - measures how well a person can spell common English words.

Grammar - measures correctness of expression, punctuation and word usage.

VR & NA - the sum of the first two test scores. It provides a good estimate of general scholastic aptitude -- an indicator of a student's ability to complete college preparatory courses and to succeed in college.

The revised edition of the Differential Aptitude Test Battery was administered in the fall to a total of 13,151 ninth grade students -- 6,657 boys and 6,494 girls. Table 18 gives separate scores for boys and girls for each of the subtests as this multi-aptitude test battery takes into consideration aptitude differences between

Table 18
Summary of Differential Aptitude Test, Form L
Grade Nine - Administered November 1970
Mean Scores by State and Districts

Category	Sex	State			Honolulu			Central			Leeward			Windward			Hawaii			Maui			Kauai			Publisher's		
		RS*	Pct*	SD*	RS	Pct	SD	RS	Pct	SD	RS	Pct	SD	RS	Pct	SD	RS	Pct	SD	RS	Pct	SD	RS	Pct	SD	RS	Pct	SD
Verbal Reasoning	M	18	40	10	19	40	10	20	45	10	16	30	9	18	40	10	17	35	9	16	30	8	15	30	8	22	55	10
	F	19	45	10	20	45	10	20	45	10	17	40	10	20	45	10	19	45	11	17	40	9	17	40	9	22	55	10
Numerical Ability	M	17	35	8	19	45	9	18	40	8	15	30	7	17	35	8	17	35	8	16	30	7	15	30	7	21	50	8
	F	18	40	8	20	50	8	18	40	8	16	30	7	18	40	8	19	45	8	17	35	7	17	35	7	21	55	8
Abstract Reasoning	M	29	40	11	30	45	11	30	45	11	27	35	11	28	40	11	28	40	11	26	35	11	25	30	12	29	40	11
	F	29	40	11	31	50	11	31	50	10	27	35	12	30	45	11	29	40	12	27	35	11	28	40	11	29	40	11
Space Relations	M	28	55	12	30	60	12	29	55	12	26	50	11	27	50	11	27	50	12	25	45	10	25	45	11	28	55	12
	F	26	60	11	28	65	11	27	60	11	24	55	11	27	60	11	26	60	11	24	55	11	24	55	10	25	55	11
Mechanical Reasoning	M	41	30	9	42	35	9	42	35	9	40	30	9	41	30	9	41	30	9	40	30	8	39	25	9	45	50	10
	F	35	40	8	35	40	8	35	40	7	34	40	8	35	40	8	35	40	7	34	40	7	34	40	8	35	50	8
Cler. Speed & Accuracy	M	43	70	13	44	75	12	46	80	15	41	60	15	42	65	12	42	65	12	39	55	10	43	70	14	38	50	12
	F	50	75	14	50	75	14	53	85	15	47	65	16	50	75	14	50	75	15	44	50	10	49	75	14	43	50	13
Language - Spelling	M	59	45	16	62	55	16	59	45	16	57	40	16	57	40	15	59	45	17	60	50	16	58	45	16	61	50	15
	F	68	45	16	70	50	16	67	45	16	64	40	17	66	45	16	69	50	17	70	50	15	69	50	16	69	50	15
Language - Grammar	M	21	40	8	22	40	8	21	40	8	19	30	7	20	35	7	21	40	8	19	30	7	19	30	7	25	50	10
	F	24	35	9	25	35	9	25	35	8	22	30	8	24	35	9	25	35	9	24	35	8	23	30	8	29	50	10
Verbal Reas. & Num. Abil.	M	35	35	16	38	45	17	39	45	17	31	25	15	35	35	16	34	35	16	32	30	14	30	25	14	43	50	17
	F	38	45	17	40	50	18	39	45	16	33	35	16	38	45	17	38	45	18	34	35	15	35	40	15	43	50	17
Number of Cases	M	6,657			1,927			1,248			959			1,044			713			437			329			2,400+		
	F	6,494			1,923			1,230			1,023			956			623			442			297			2,350+		
Total - Male & Female		13,151			3,850			2,478			1,982			2,000			1,336			879			626			4,750		

*RS = Raw Score *Pct = Percentile *SD = Standard Deviation

the sexes. It also presents test summaries for the state and each of the seven districts.

Test results for this year show both our boys and girls performing at or slightly above the publisher's national norms groups in Abstract Reasoning and Space Relations. In Clerical Speed and Accuracy, both boys and girls exceeded the national level by 20 and 25 percentile points, respectively. However, both boys and girls dipped slightly below the national norm this year in Numerical Ability and Language-Spelling. In Verbal Reasoning and Numerical Ability, the boys showed a small loss while the girls maintained their status quo when compared with the results of last year. In general, the girls performed slightly better than the boys in most of the subtests. The total performance this year is not up to that of last year.

The combined VR + NA score is given. It provides a good estimate of general scholastic aptitude -- an indicator of a student's ability to complete college preparatory courses and to succeed in college.

Local Hawaii norms have been developed and are reported in Table 19 for boys and Table 20 for girls. Since these are more specific, they provide additional information, as well as a more meaningful and useful basis for interpreting test results of pupils with similar curricula, organization, geographical environment and pupil population. Each school is encouraged to compare the performance of students with that of its own district, other districts, and the State in addition to that of the publisher's "national" norms group in order to get a better picture of outcomes.

Table 19
Differential Aptitude Test Battery, Form L
Grade 9 -- Boys Cases--6,621 November 1970
By Raw Score

	%ile	Verb. Reas.	Num. Abil.	Abs. Reas.	Space Rela.	Mech. Reas.	Cler. Spd. & Accuracy	Lang. - Spelling	Lang. - Grammer	Verb. Reas. & Num. Abil.
	99	42	37	46	56	59	80	93	41	77
	98	41	36	45	53	58	72	91	39	73
	97	39	35		52	57	68	90	37	71
	96	38	34	44	51	56	66	88	36	68
	95	37	33		50		64	87	35	66
	94	36		43	49	55	63	86	34	64
	93	35	32		48	54	61	85	33	63
	92	34	31		47		60	84		62
	91			42	46	53	59	83	32	61
	90	33	30				58	82	31	59
	89	32			45			81		58
	88	31	29		44	52	57		30	57
	87			41			56	80		
	86	30	28		43		55	79	29	56
	85				42	51		78		55
	84	29	27				54	77		54
	83			40	41				28	53
	82	28				50	53	76		52
	81		26		40			75		51
	80	27		39			52		27	
	79		25		39	49		74		50
	78	26					51	73		49
	77		24		38				26	
	76	25				48		72		48
Q_3	75	24	23	38	37	47	50	71	25	47
	74	24	23							46
	73				36		50	70	25	
	72	23				47		69		45
	71		22	37	35					44
	70							68		
	69	22			34		49		24	43
	68		21					67		42
	67			36	33	46		66		41
	66	21					48			
	65		20		32			65	23	40
	64									
	63	20		35	31	45	47	64		39
	62									
	61	19	19		30			63		38
	60						46		22	37
	59			34		44		62		
	58		18		29					36
	57	18					45	61		
	56				28				21	35
	55			33		43		60		34
	54	17	17							
	53				27		44	59		
	52			32						33
	51	16				42		58		
Median	50	15	16	31	26	41	43	57	20	32

Table 19- Grade 9, Boys, DAT, Form L
For November 1970 by Raw Score--(Cont'd)

%ile	Verb. Reas.	Num. Abil.	Abs. Reas.	Space Rela.	Mech. Reas.	Cler. Spd. & Accuracy	Lang. - Spelling	Lang. - Grammer	Verb. Reas. & Num. Abil.
49		16	31			43			
48							57		31
47	15			25	41				
46						42	56		30
45		15	30					19	
44				24					29
43	14						55		
42			29		40	41			28
41		14					54		
40				23					
39			28					18	27
38	13				39	40	53		
37									
36		13	27	22			52		26
35					38	39			
34			26					17	
33	12			21			51		25
32			25			38			
31					37		50		24
30		12	24						
29				20		37			
28			23				49	16	
27	11		22		36				23
26			21			36	48		
Q1 25	10	11	20	19	35	35	47	15	22
24		11	20		35				22
23			19			35	47	15	
22			18	18					
21	10		17		34	34	46		21
20			16						
19		10					45	14	
18			15	17	33	33			
17			14				44		20
16					32	32			
15	9		13				43		
14				16	31	31		13	19
13		9	12				42		
12					30	30			
11			11	15		29	41	12	18
10	8				29		40		
9		8	10			28	39		17
8				14	28	27	38		
7	7				27	26	37	11	16
6			9			25	36		
5		7		13	26	24	35	10	15
4	6		8	12	25	22	33		
3		6	7	11	24	18	31	9	14
2	5	5	6	10	23	12	28	8	13
1	4	4	5	9	20	7	23	7	11
Mean	18	17	29	28	41	43	59	21	35
Publ.'s Mean	22	21	29	28	45	46	61	25	43
Publ.'s Median	21	20	31	26	45	45	60	25	42

Table 20
Differential Aptitude Test Battery, Form L
Grade 9 -- Girls Cases--6,458 November 1970
By Raw Score

	%ile	Verb. Reas.	Num. Abil.	Abs. Reas.	Space Rela.	Mech. Reas.	Cler. Spd. & Accuracy	Lang. - Spelling	Lang. - Grammer	Verb. Reas. & Num. Abil.
	99	44	37	46	54	52	96	96	48	78
	98	43	36		51	51	86	95	45	75
	97	41	35	45	50	50	79	94	43	73
	96	40	34		48	49	76		41	71
	95	39	33	44	47	48	74	93	40	68
	94	38			46		72	92	39	67
	93	37	32		45	47	71	91		66
	92	36	31	43	44		70		38	65
	91	35				46	68	90	37	63
	90				43		67			62
	89	34	30		42	45	66	89	36	61
	88	33		42			65	88		60
	87		29		41		64		35	59
	86	32				44	63	87		58
	85			•	40				34	57
	84	31	28	41	39		62	86		56
	83					43		85		
	82	30	27		38		61		33	55
	81			40				84		54
	80	29			37	42	60		32	
	79		26					83		53
	78	28			36		59			52
	77					41		82	31	51
	76	27	25	39	35		58			
Q_3	75	26	24	38	34	40	57	81	30	50
	74	26			34		57		30	49
	73		24			40		80		
	72	25		38			56			48
	71				33			79	29	47
	70		23		32		55			
	69	24				39				46
	68			37				78		45
	67	23			31		54		28	
	66		22					77		44
	65				30		53			
	64	22				38		76	27	43
	63		21	36						
	62				29		52	75		42
	61	21								41
	60				28			74	26	
	59	20		35		37				40
	58		20		27		51	73		
	57									39
	56	19		34				72	25	38
	55				26					
	54		19			36		71		37
	53	18								
	52			33	25		50	70		36
	51		18						24	
Median	50	17	17	32	24	35	49	69	23	35

Table 20- Grade 9, Girls, DAT, Form L
For November 1970 by Raw Score--(Cont'd)

%ile	Verb. Reas.	Num. Abil.	Abs. Reas.	Space Rela.	Mech. Reas.	Cler. Spd. & Accuracy	Lang. - Spelling	Lang. - Grammer	Verb. Reas. & Num. Abil.
49			32	24	35				
48						49			34
47	16	17					68		
46							67	23	33
45			31	23	34	48			
44							66		32
43	15	16							
42			30	22		47	65	22	31
41									
40					33		64		30
39	14		29			46			
38		15					63	21	29
37			28	21					
36						45	62		28
35	13				32				
34			27				61	20	27
33		14		20					
32			26			44			
31							60		26
30	12		25		31		59	19	
29		13		19		43			25
28			24				58		
27									
26			23			42	57		24
Q_1 25	11	12	22	18	30	41	56	18	23
24	11		21			41			
23		12					55		23
22			20		29			17	
21			19	17		40	54		
20	10		18				53		22
19			17						
18		11				39	52	16	
17			16	16	28		51		21
16			15			38			
15			14			37	50		
14	9				27	36	49	15	20
13		10	13	15					
12						35	48		
11			12				47	14	19
10			11	14	26	34	46		
9	8	9				33			
8			10		25	32	45	13	18
7				13		31	44		17
6		8	9		24	30	43	12	
5	7			12		29	41		16
4		7	8		23	28	40	11	
3	6		7	11	22	26	38	10	15
2		6	6	10	21	22	36	9	13
1	5	5	5	9	19	8	30	8	12
Mean	19	18	29	26	35	50	68	24	38
Publ.'s Mean	22	21	29	25	37	52	69	29	43
Publ.'s Median	21	20	31	23	37	52	69	28	41

Interpretation and Use of Test Data

For proper interpretation and use of DAT results, see the Fourth Edition Manual for the Differential Aptitude Tests[2] and also Testing in Hawaii Schools, January 1968, pages 72-82.[3]

Expectancy tables predicting College Board Senior Scholastic Aptitude Test (SAT) scores based on ninth grade DAT scores of Hawaii students are found in Testing in Hawaii Schools, January 1968, pages 79-82 and also in Expectancy Tables and Predicting CEEB Scholastic Aptitude Test (SAT) Scores, February 1968.[4] These helpful aids predict probable SAT scores for use in the counseling and guidance of students.

---

[2] George K. Bennett, Harold G. Seashore and Alexander G. Wesman, Fourth Edition Manual for the Differential Aptitude Tests (New York, New York: The Psychological Corporation, 1966).

[3] Hawaii Department of Education, Testing in Hawaii Schools (January 1968).

[4] Hawaii Department of Education, Expectancy Tables and Predicting College Entrance Examination Board Scholastic Aptitude Test (SAT) Scores, Research Report No. 56 (February 1968).

Summary of Test Results for 1970-1971

This report summarizes the test results of 1970-1971 obtained from academic ability, achievement and multi-factor testing of students in grades two through twelve covering a wide range of school levels. At each grade level, tests used in the SCAT-STEP series were of various levels and forms appropriate to the respective grades tested. As a student moves through the elementary and secondary school levels, he would accumulate periodic and comparable test data on the complete SCAT-STEP series for every two-year cycle. The test scores are printed on adhesive-sensitive labels which are affixed to a standardized Test Record Form after each testing. This provides a pattern of performance to aid in the guidance and counseling of students and to help teachers in doing a better instructional job.

This summarization of over-all educational achievement should be taken as a rough estimation of how our students compare with the national norm groups at various points along the range of scores. Test data provide us with one source of objective information to aid in decision making. In the interpretation and use of test scores, other relevant and pertinent data should be brought into play for proper perspective and relationship.

Results of both ability and achievement testing in grade two showed our students performing well above the comparable norm groups. For the California Short-Form Test of Mental Maturity, Level 1, the State mean for Language was at national average while the State means for both Non-Language and Total Factors were above norm. For the California Reading Test, Upper Primary, the State mean

for vocabulary and comprehension was at the 62nd percentile, which indicates performance in the high average level.

Looking at the SCAT-STEP results in Figures 1, 2 and 3, it can be observed that the typical Hawaii student scored at or above national norm 15 of 45 instances or 33 per cent of the cases.

On the SCAT, a typical Hawaii student performed at or above the national average level in 9 of 15 instances or 60 per cent of the cases. This means that three out of five students have the ability to compete with their mainland counterparts in dealing with problems involving the understanding and use of words and numbers.

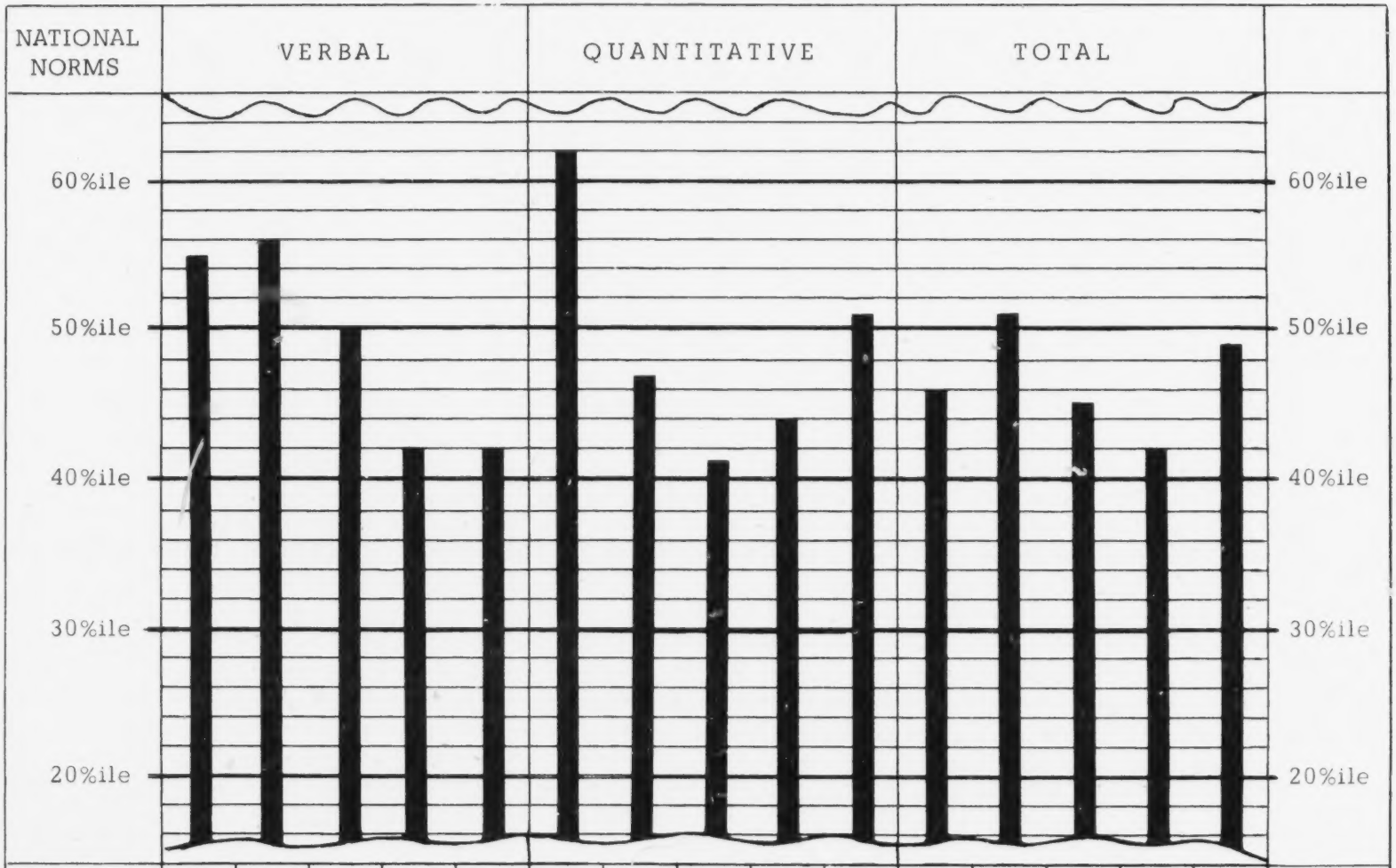
On the STEP performance of a typical Hawaii student was at or above national norm in 6 of 30 instances or 20 per cent of the cases. These include the sixth and eighth graders in reading, the fourth grader in mathematics, the tenth grader in writing, the ninth grader in science and the seventh grader in social studies. Performance dipped slightly this year when compared with that of the previous year. On the listening test, students in all five grade levels again scored below the national average. Because of our repeated low performance on this listening test, perhaps more emphasis may need to be directed in helping our students develop critical and selective listening in the schools.

Compared with SCAT verbal scores, the performance of our students in reading achievement was consistent with expectations for all grades except for that of grade four. When the scores in mathematics achievement were compared with the SCAT quantitative scores, performance of the typical eighth grader was consistent with expectations.

Figure 1

SCHOOL AND COLLEGE ABILITY TEST (SCAT)
SUMMARY FOR STATE OF HAWAII 1970-1971

SCAT



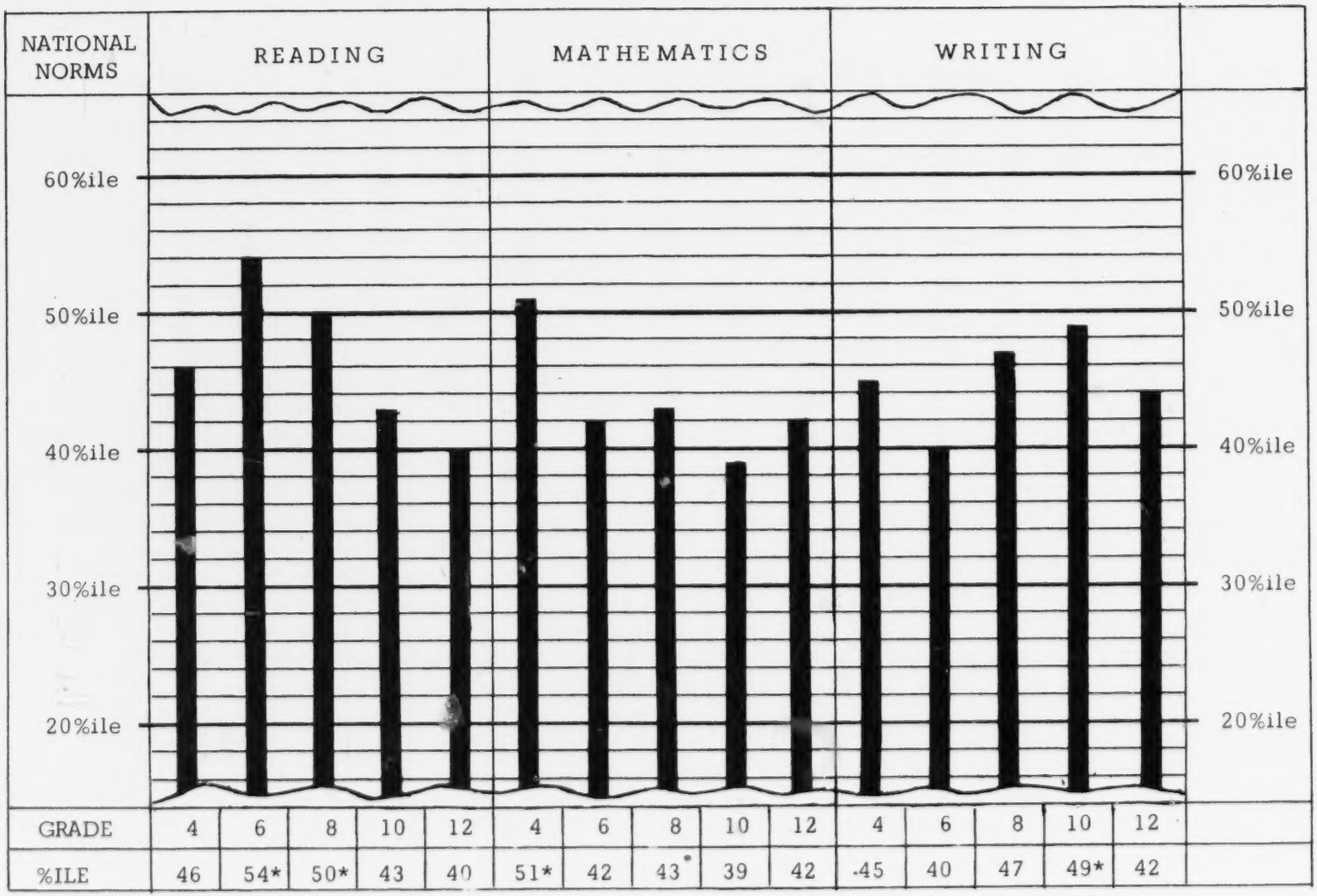
GRADE	4	6	8	11	12	4	6	8	11	12	4	6	8	11	12
%ILE	55*	56*	50*	42	42	62*	47*	41	44	51*	46*	51*	45	42	49*

* Equal or Above National Average

Figure 2

SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS (STEP)
SUMMARY FOR STATE OF HAWAII 1970-1971

S T E P (FALL)



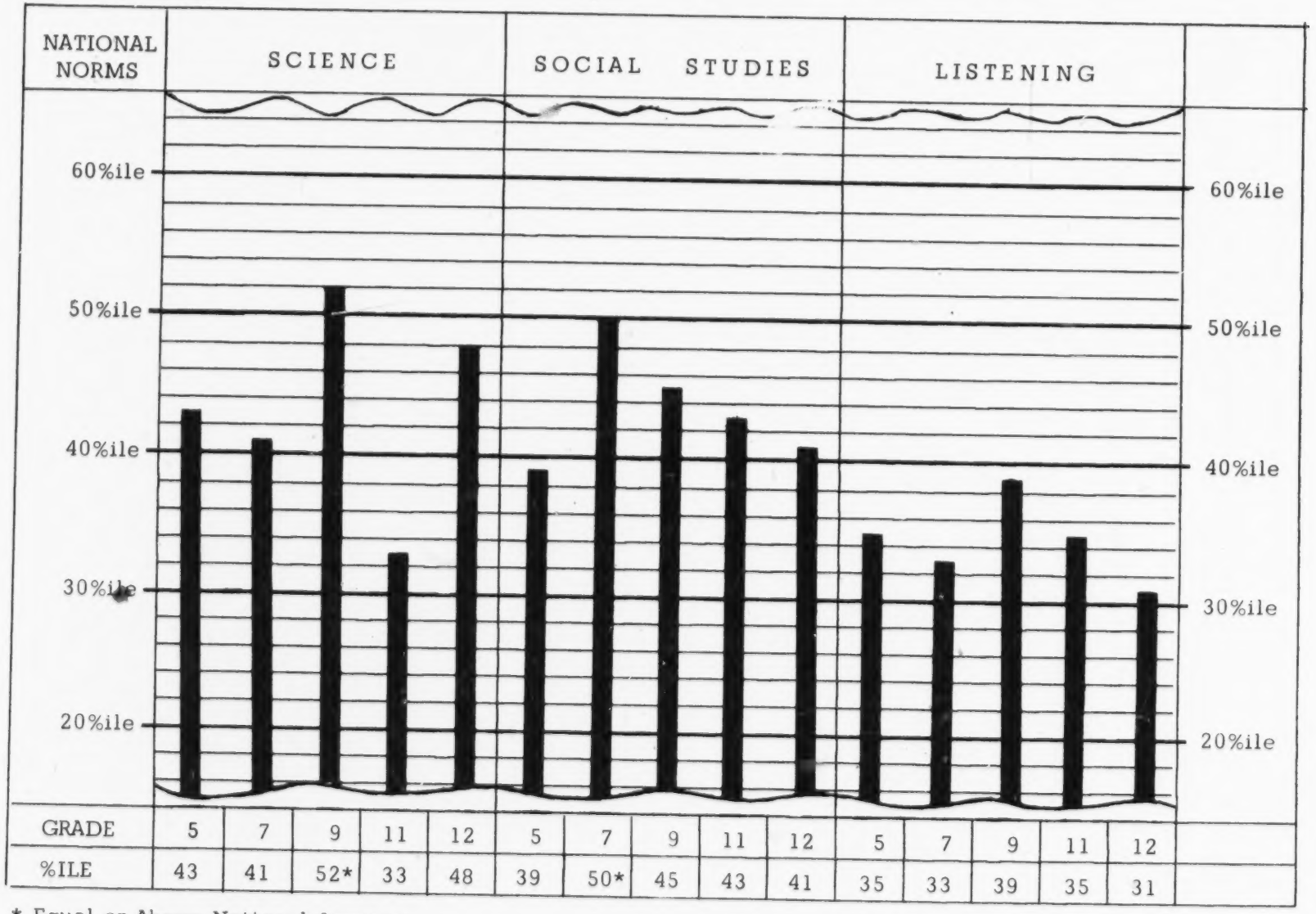
GRADE	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
%ILE	46	54*	50*	43	40	51*	42	43*	39	42	45	40	47	49*	42

*Equal or Above National Average

Figure 3

SEQUENTIAL TESTS OF EDUCATIONAL PROGRESS (STEP)
SUMMARY FOR STATE OF HAWAII 1970-1971

S T E P (SPRING)



GRADE	5	7	9	11	12	5	7	9	11	12	5	7	9	11	12
%ILE	43	41	52*	33	48	39	50*	45	43	41	35	33	39	35	31

* Equal or Above National Average

When one examines all points of measurement in ability, aptitude, and achievement for grades two to twelve of which there are 69, Hawaii students were either equal to or exceeded the national norm groups in 40 per cent of the instances. Compared to last year, the general performance of Hawaii students this year showed a downward trend.